

WHAT IS CLAIMED IS :

1 A decomposition apparatus for decomposing an organic compound fluid such as a gas of an organic compound, a liquid thereof, a gas containing an organic compound, and a liquid containing an organic compound, which comprises:

an excimer lamp emitting UV light for decomposing said organic compound, and

a decomposition container provided with an excimer lamp for decomposing said organic compound in said organic compound fluid.

2 A decomposition apparatus as claimed in Claim 1, wherein

two or more decomposition containers each having said excimer lamp are jointed for flowing said fluid in one container to the other container in order.

3 A decomposition apparatus as claimed in Claim 1, wherein

said container is equipped with a flow rate buffering material for slowing down a flow rate of said fluid.

4 A decomposition apparatus as claimed in Claim 1, wherein

said decomposition container is equipped with a contact part between said fluid and a catalyst gas for promoting decomposition of the organic compound.

5 A decomposition apparatus as claimed in Claim 1, wherein

an organic compound to be decomposed selected from flon, dioxin (polychlorinated dibenzo-para-dioxin), PCB (polychlorinated biphenyl), trichloroethylene, tetrachloroethylene, dichloromethane, tetrachloromethane, 1,2-dichloroethane, 1,1-dichloroethane, cis-1,2-dichloroethane,

1,1,1-trichloroethane, 1,3-dichloropropene and a mixture thereof.

6 A decomposition apparatus as claimed in Claim 1, wherein said excimer lamp comprises:

a discharging vessel made of a dielectric material with excellent permeability of UV light,

an inner tube equipped on the inside of the discharging vessel,

a protect tube equipped on the outside of the discharging vessel,

an outer electrode equipped in the position between the protect tube and the discharging vessel,

an inner electrode equipped on the inside of the inner tube,

a filling gas filled up in said discharging vessel, and

a power supply for applying a voltage between said outer electrode and said inner electrode.

7 A decomposition apparatus as claimed in Claim 6, wherein said excimer lamp comprises:

said power supply applying a high frequency voltage from 1 to 20 MHz to a metal container and the inner electrode.

8 A decomposition apparatus as claimed in Claim 1, wherein

a wave length of UV light is of 222nm or below.

~~9~~ A decomposition apparatus of an organic compound fluid such as a gas of an organic compound, a liquid thereof, a gas containing an organic compound and a liquid containing an organic compound, which comprises:

an excimer emission body equipped with an inner electrode,

a metal container equipped to the outside of said excimer emission body for filling up at least one selected from a liquid of an organic compound and a liquid containing organic compound ,

a power supply for applying a high frequency voltage between the inner electrode and the metal container, and

a UV light irradiated from said excimer emission body to said liquid in said metal container allows to generate OH radical and O radical in the liquid, and

the radical cutting some bond of the organic compound so that the organic compound in the liquid is decomposed easily.

10 A decomposition apparatus as claimed in Claim 9, wherein said excimer emission body comprises:

a discharging vessel made of a dielectric material with excellent permeability of UV light,

an inner tube equipped on the inside of said discharging vessel,

an inner electrode equipped on the inside of said inner tube, and

a filling gas filled up in said discharging vessel.

11 A decomposition apparatus as claimed in Claim 9, wherein said excimer lamp comprises:

said power supply applying a high frequency voltage from 1 to 20 MHz to the metal container and the inner electrode.

12 A decomposition apparatus as claimed in Claim 9, wherein

an organic compound is selected from flon, dioxin (polychlorinated dibenzo-para-dioxin), PCB (polychlorinated biphenyl), trichloroethylene, tetrachloroethylene, dichloromethane, tetrachloromethane, 1,2-dichloroethane, 1,1-dichloroethane, cis-1,2-dichloroethane, 1,1,1-trichloroethane, 1,3-dichloropropene and a mixture thereof.

13 A decomposition apparatus as claimed in Claim 9, wherein  
a wave length of UV light is of 222nm or below.

14 A decomposition method for decomposing said organic compound, which is used in said decomposition apparatus as claimed in Claim 1, which comprises steps of:

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flowing a fluid which is selected from a gas of an organic compound, a liquid thereof, a gas containing an organic compound and a liquid containing an organic compound during the emission of UV light which is irradiated from an excimer lamp, and

decomposing the organic compound in fluid during its flowing.

15 A decomposition method as claimed in Claim 14, wherein said fluid flows slowly at a flow rate buffering material during the emission of UV light.

16 A decomposition method as claimed in Claim 14, wherein said fluid contacts a catalyst for promoting the decomposition of an organic compound during the emission of UV light.

17 A decomposition method as claimed in Claim 14, wherein an organic compound is selected from flon, dioxin (polychlorinated dibenzo-para-dioxin), PCB (polychlorinated biphenyl), trichloroethylene, tetrachloroethylene, dichloromethane, tetrachloromethane, 1,2-dichloroethane, 1,1-dichloroethane, cis-1,2-dichloroethane, 1,1,1-trichloroethane, 1,3-dichloropropene and a mixture thereof.

18 A decomposition method as claimed in Claim 14, wherein a wave length of UV light is of 222nm or below.

19 An excimer lamp, which comprises:

~~a discharging vessel made of a dielectric material with excellent permeability of UV light,~~

~~an inner tube equipped on the inside of said discharging vessel,~~

an outer electrode equipped on the outside of the discharging vessel,  
an inner electrode equipped on the inside of the inner tube, and  
a filling gas filled up in the discharging vessel, and  
a UV light is irradiated from the excimer lamp by which a high  
frequency voltage is applied between the outer electrode and the inner  
electrode from 1 to 20 MHz.

20 An excimer lamp as claimed in Claim 19, wherein  
said inner tube is cooled by a nitrogen gas flowed in said inner tube.

21 An excimer lamp as claimed in Claim 19, wherein  
d/D ratio, in which said "d" is an inner diameter of said inner tube  
and said "D" is an outer diameter of said inner electrode, is of from 1.1 to  
3.0.

22 An excimer lamp as claimed in Claim 19, wherein  
L/D ratio, in which said "L" is a length of said inner electrode and  
said "D" is an outer diameter of said inner electrode, is of from 10 to below  
30.

23 An excimer lamp as claimed in Claim 19, wherein  
at least one U-shaped inner tube of at least one or above is equipped  
on the inside of said discharging vessel.

24 An excimer emission apparatus, which comprises:  
said excimer lamp as claimed in Claim 19,  
a power supply for applying a high frequency voltage from 1 to 20  
MHz between said outer electrode and said inner electrode, and  
a circulating cooling apparatus by the nitrogen gas to cool said inner  
tube.